THE JOURNAL

OF

APPLIED BACTERIOLOGY

EDITED FOR THE SOCIETY

BY

M. SUSSMAN, G. I. BARROW

AND

R. G. BOARD

VOLUME 66, 1989

Copyright © 1989, by The Society for Applied Bacteriology

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the Society

ISSN 0021–8847

Published by Blackwell Scientific Publications Ltd.,

Oxford, London, Edinburgh, Boston

and Melbourne

Printed in Great Britain

Contents

No. 1 (January 1989)

1 Editorial

3 Instructions to authors

11 Quarterly reviews in applied microbiology

Agriculture

15 Postprandial variations in the activity of polysaccharide-degrading enzymes in microbial populations from the digesta solids and liquor fractions of rumen contents
A. G. WILLIAMS, SUSAN E. WITHERS & N. H. STRACHAN

Food and Milk

27 Variation in the behaviour of enterotoxigenic *Staphylococcus aureus* after heat stress in milk
V. K. BATISH, B. NATARAJ & SUNITA GROVER

37 Development and evaluation of a starter culture for the industrial production of gari
C. O. OFUYA & C. NNAJIOFOR

43 A biotinylated DNA probe to detect bacterial cells in artificially contaminated foodstuffs
S. DOVEY & K. J. TOWNER

49 Investigation of a simple amperometric electrode system to rapidly quantify and detect bacteria in foods
R. A. PATCHETT, ALISON F. KELLY & R. G. KROLL

57 *Vibrio parahaemolyticus* and other halophilic vibrios associated with seafood in Hong Kong
KWONG-YU CHAN, M. L. WOO, L. Y. LAM & G. L. FRENCH

Medical, Dental and Veterinary

65 Rapid radiometric detection of mycobacterial growth from smear-positive tissue samples from pigs
S. E. HOFFNER, K. HAHN, A. PEDERSEN & K. SANDSTEDT

69 Antimicrobial activity of clove oil dispersed in a concentrated sugar solution
JORGE BRIOZZO, LIDIA NÚÑEZ, JORGE CHIRIFE, LEÓN HERSZAGE & MIGUEL D'AQUINO

Microbial Physiology

77 Impact of aeration on the metabolic end-products formed from glucose and galactose by *Streptococcus lactis*
J. F. COGAN, D. WALSH & S. CONDON

Sterilization and Disinfection

85 Enhanced resistance of anaerobic rumen fungi to the ionophores monensin and lasolocid in the presence of methanogenic bacteria
C. S. STEWART & A. J. RICHARDSON

No. 2 (February 1989)

Agriculture

95 Survival of soft rot coliforms, *Erwinia carotovora* subsp. *carotovora* and *E. carotovora* subsp. *atroseptica* in soil in Scotland
M. C. M. PEROMBELON & L. J. HYMAN

107 Physiological state of epiphytic bacteria on submerged stems of the reed *Phragmites australis* compared with planktonic bacteria in gravel-pit ponds
S. A. AL-HADITHI & R. GOULDER

Food and Milk

119 An appraisal of the efficacy of pre-enrichment for the isolation of *Campylobacter jejuni* from water and food
T. J. HUMPHREY

127 An improved ELISA method for the detection of *Salmonella typhimurium*
E. PRUSAK-SOCHACZEWSKI & J. H. T. LUONG
137 A numerical taxonomic study of proteolytic and lipolytic psychrotrophs isolated from caprine milk
J. M. COX & I. C. MAC RAE
153 Differentiation of *Staphylococcus aureus* from freshly slaughtered poultry and strains 'endemic' to processing plants by biochemical and physiological tests
G. C. MEAD, A. P. NORRIS & N. BRATCHELL

Methods

161 A laser-light pulse counting method for automatic and sensitive counting of bacteria stained with acridine orange
R. G. KROLL, A. C. PINDER, P. W. PURDY & UBALDINA M. RODRIGUES

Microbial Physiology

169 The pectinolytic enzyme of *Selenomonas ruminantium*
KVETOSLAVA HEINRICHOVA, MARIA WOJCIECHOWICZ & A. ZIOŁECKI

No. 3 (March 1989)

Food and Milk

175 Whey fermentation by immobilized cells of *Propionibacterium shermanii*
C. P. CHAMPAGNE, C. BAILLARGEON-CÔTÉ & J. GOULET
185 The D(−)lactic acid and acetoin/diacetyl as potential indicators of the microbial quality of vacuum-packed pork and meat products
BEGOÑA DE PABLO, M. A. ASENSIO, B. SANZ & J. A. ORDOÑEZ
191 The incidence of *Listeria monocytogenes* in raw milk from farm bulk tanks in North-East Scotland
D. R. FENLON & J. WILSON
197 Growth and fumitremorgin production by *Neosartorya fischeri* as affected by food preservatives and organic acids
P. V. NIELSEN, L. R. BEUCHAT & J. C. FRISVAD
209 An oxygen electrode-based assay of catalase activity as a rapid method for estimating the bacterial content of foods
R. G. KROLL, EMMA R. FREARS & ANITA BAYLISS

Medical, Dental and Veterinary

219 Methods used to investigate a possible environmental source of *Mycobacterium avium-intracellulare-scrofulaceum* (MAIS) infection in farmed deer
B. A. PROSSER

Microbial Physiology

227 Partial immunological characterization of heat-stable proteinases from *Pseudomonas* spp. of dairy origin
J. I. AZCONA, R. MARTÍN, P. E. HERNÁNDEZ & B. SANZ
235 Cell location and partial characterization of *Brochothrix thermosphacta* and *Lactobacillus curvatus* lipases
MARTINE PAPON & RÉGINE TALON

Sterilization and Disinfection

243 A comparative study of the bactericidal and growth inhibitory activities of the bisbiguanides alexidine and chlorhexidine
JUDI A. CHAWNER & P. GILBERT
253 Interaction of the bisbiguanides chlorhexidine and alexidine with phospholipid vesicles: evidence for separate modes of action
JUDI A. CHAWNER & P. GILBERT

No. 4 (April 1989)

259 Quarterly literature reviews in applied microbiology

Antimicrobial Agents

263 Bacterial overgrowth in the jejunum of ICR mice and Wistar rats orally administered with a single lethal dose of fusarenon-X, a trichothecene mycotoxin
Y. MORISHITA, K. NAGASAWA, NAOKO NAKANO & KIMIKO SHIROMIZU

Food and Milk

271 Purification and properties of a β-glucosidase of *Hanseniaspora vineae* Van der Walt and Tscheuschner with the view to its utilization in fruit aroma liberation
Y. VASSEROT, H. CHRISTIAENS, P. CHEMARDIN, A. ARNAUD & P. GALZY

281 Volatile compounds associated with microbial growth on normal and high pH beef stored at chill temperatures
R. H. DAINTY, R. A. EDWARDS, C. M. HIBBARD & J. J. MARNEWICK

Microbial Physiology

291 A comparison of the adhesive properties and surface ultrastructure of the fibrillar *Streptococcus sanguis* 12 and an adhesion deficient non-fibrillar mutant 12 na
M. D. P. WILLCOX, JANET E. WYATT & PAULINE S. HANDLEY

301 Rapid photometric assay of growth of *Mycoplasma mycoides* subsp. *capri*
S. K. MEUR, A. SIKDAR, N. C. SRIVASTAVA & S. K. SRIVASTAVA

303 Partial purification and characterization of phospholipase C from *Yersinia enterocolitica*
S. TOORA, GAGANDEEP SINGH, S. DHAR, A. D. SINGH, R. P. TIWARI & G. SINGH

311 Detection of β-galactofuranosidase production by *Penicillium* and *Aspergillus* species using 4-nitrophenyl β-D-galactofuranoside
M. A. COUSIN, S. NOTERMANS, P. HOOGERHOUT & J. H. VAN BOOM

319 Amino acid requirements for the growth and production of some exocellular products of *Staphylococcus aureus*
D. TAYLOR & K. T. HOLLAND

331 The effect of cooling rate, freeze-drying suspending fluid and culture age on the preservation of *Campylobacter pylori*
R. J. OWEN, S. L. W. ON & M. COSTAS

Systematics

339 Detecting aberrant strains in bacterial groups as an aid to constructing databases for computer identification
C. D. LANGHAM, P. H. A. SNEATH, S. T. WILLIAMS & A. M. MORTIMER

Water

353 Evaluation of different plating media used in the isolation of salmonellas from environmental samples
M. A. MORIÑIGO, E. MARTINEZ-MANZANARES, A. MUÑOZ, R. CORNAX, P. ROMERO & J. J. BORREGO

No. 5 (May 1989)

361 Obituary

365 *A Review:* Probiotics in man and animals
R. FULLER

Food and Milk

379 A highly selective two-stage isolation method for the enumeration of *Staphylococcus aureus* in foods
B. K. ISIGIDI, L. A. DEVRIESE, TH. CROEGAERT & J. VAN HOOF

385 Rapid impedance detection of salmonellas in confectionery using modified LICNR broth
R. D. BULLOCK & D. FRODSHAM

Genetics

393 Conjugal transfer of a plasmid encoding bacteriocin production and immunity in *Pediococcus acidilactici* H
S. K. RAY, W. J. KIM, M. C. JOHNSON & B. RAY

Medical, Dental and Veterinary

401 Comparison of dot blot with in-situ hybridization for the detection of *Neisseria gonorrhoeae* in urethral exudate
G. J. SCHOONE, W. J. G. CORNELISSEN, P. C. VEENHUIJSEN, C. E. SCHÖNEMAN & W. J. TERPSTRA

407 Influence of mucin on glycosidase, protease and arylamidase activities of human gut bacteria grown in a 3-stage continuous culture system
G. T. MACFARLANE, S. HAY & G. R. GIBSON

Methods

419 Identification of *Bacillus anthracis* by polyclonal antibodies against extracted vegetative cell antigens
A. P. PHILLIPS & J. W. EZZELL

Microbial Physiology

433 The influence of incubation pH on the activity of rat and human gut flora enzymes
A. K. MALLETT. C. A. BEARNE & I. R. ROWLAND

439 Production and properties of xylanases from actinomycetes
A. S. BALL & A. J. MCCARTHY

445 Cellular fatty acid composition of *Leuconostoc oenos*
R. P. TRACEY & T. J. BRITZ

457 Synthesis and properties of a mutant type of xanthan
M. I. TAIT & I. W. SUTHERLAND

Taxonomy

461 A chemotaxonomic method for classification of asymmetric penicillia by means of cross-partition in aqueous two-phase systems combined with SIMCA pattern recognition analysis
GUNNAR STRÖM, GÖRAN BLOMQUIST & BENGT SÖDERSTRÖM

No. 6 (June 1989)

Agriculture

469 Fate of salmonellas in the alimentary tract of chicks pre-treated with a mature caecal microflora to increase colonization resistance
C. S. IMPEY & G. C. MEAD

Food and Milk

477 A two-year study of the distribution of 'thermophilic' campylobacters in human, environmental and food samples from the Reading area with particular reference to toxin production and heat-stable serotype
C. R. FRICKER & R. W. A. PARK

491 Effect of the ethanol content of beer on the heat resistance of a spoilage *Lactobacillus*
M. R. ADAMS, P. J. O'BRIEN & G. T. TAYLOR

Medical, Dental and Veterinary

497 Evidence for the pathogenic role of *Rhodococcus* species in pulmonary diseases
O. U. OSOAGBAKA

507 Studies on antagonism between porcine skin bacteria
R. P. ALLAKER, D. H. LLOYD & W. C. NOBLE

515 Evaluation of a radiometric method for studying bacterial activity in the presence of antimicrobial agents
R. R. CUTLER, P. WILSON & F. V. CLARKE

Methods

523 The effect of incubation temperature and magnesium chloride concentration on growth of salmonella in home-made and in commercially available dehydrated Rappaport-Vassiliadis broths
M. PETERZ, C. WIBERG & P. NORBERG

Microbial Physiology

529 Response of enteric luminous bacteria to environmental conditions in the gut of the fish
A. RAMESH & V. K. VENUGOPALAN

535 Comparison of properties of collected cells and cells from the culture vessel during continuous culture of *Streptococcus mutans* Ingbritt
JOHN A. MAYO, ANN S. MCDERMID, PHILIP D. MARSH & DEREK C. ELLWOOD

543 Modelling the growth response of *Staphylococcus xylosis* to changes in temperature and glycerol concentration/water activity
R. E. CHANDLER & T. A. MCMEEKIN

Water

549 The application of bacteriophage as tracers of chalk aquifer systems
HELEN SKILTON & D. WHEELER

559 The effects of nutrients on the survival of *Escherichia coli* in lake water
C.-H. LIM & K. P. FLINT

571 Index